



Integrating Ethics into Case Study Assignments

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I teach an upper-level writing course, *Genes, Race, Gender, and Society*, designed for Life Science majors, in which I utilize a case study to expose students to ethical ways of thinking. Students first work through the topical case study and then are challenged to rethink their responses through the lenses of ethics, taking into account different ethical frameworks. Students then develop their own case study, integrating ethical components. I want to expose my students to this way of thinking because I see technology being driven by the Jurassic Park phenomenon, “Your scientists were so preoccupied with whether or not they could, they didn’t stop to think if they should,” and want future physicians grounded in a sense of how their actions relate to the greater good.

INTRODUCTION

Many instructors utilize case studies to engage students in interesting real-world scenarios (1). Although case studies are written in many ways, one method for engaging students is for them to respond to a scenario described in the case study. Often these scenarios include health information, genetic testing, medical mysteries, or other topics of human health or health disparities. There are many excellent case studies available around the Web (2) and in this journal as well. Case studies have been shown to increase comprehension, interest, and critical thinking (5). I will describe an effective method to integrate ethics into many case studies one might utilize.

BACKGROUND

The course I teach is *Genes, Race, Gender, and Society*, which “examines biological events and theories on race and gender and their interface with societal views.

Enrollment requirements: pre-requisites: Freshman Biology, Genetics, Cell Biology, and Organic Chemistry with an ASU General Studies Designation: Literacy and Critical Inquiry. These courses focus on critical inquiry, which we accomplish by gathering and critically analyzing data, by reading and examining primary literature. The literacy component

of the course is achieved by debating and writing about the course topics, and 100% of the grade is derived from written or oral communication.

PROCEDURE

1. The first step is to identify an appropriate case study that has more than one “answer.” For example, I describe below a case study I use in my course.
2. Students then work through the case study and submit their responses.
3. After students have finished the case study, we then go over the multi-dimensional aspects of the case study, for example that different people are going to approach the case differently and would have different responses. For example, some people have a grounding in Western religion and their responses may include religious or spiritual answers and many will have personal experiences that will color their responses.
4. We then discuss how responses can look different, depending on the personal experiences and ethical framework each person uses to come to their case study response. There are many philosophers that have described ethical frameworks, but for my purposes, I stick to six classical ways of thinking (3, 4) (Table 1).
5. Once students understand the six general ethical frameworks, they work back through their case study to determine which ethical thinking pattern(s) guided their answer.
6. After students have evaluated their ethical thinking and documented their answer, we discuss the

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TABLE 1.
Classical ways of thinking.

Ethical Framework	Summary
Utilitarian	"The good of the many outweighs the good of the few." –Spock
Kantian (Deontological)	The act itself is the important motivator, not the result.
Virtue	The character and motivation of the individual are most important.
Principles (Justice, Fairness)	The decision is guided by a set of principles usually encompassing justice, fairness, and doing good.
Care	Individuals must care about one another and take each other into account with decisions. Relationships and power differentials must be taken into account when making decisions.
Rights	All individuals have certain rights, which must always be upheld, no matter the consequences.

case in small groups to determine which framework each student used. Students then have the opportunity to change their response to the case study and document how understanding ethical thinking changed it. An extension of this assignment, which we have not yet tried is to then ask students to deliberately rework the case through a different ethical framework to see how their responses change.

7. A final component of my class is then for groups to develop their own short case study, applying what they have learned in the previous work.
8. Student colleagues then work through the case studies designed by their peers, being aware of the ethical frameworks and reporting their response to the case study and what ethical framework(s) they used when working through the case study.

Example

As a case study, students read the Discover Article, "Cancer's Wandering Gene," (6) and then answer the following questions:

In the general Jewish population, Tay-Sachs screening programs were set up to determine carriers and then monitor pregnancies when two carriers were to have a baby. Fetuses with Tay-Sachs were identified and aborted to bring down Tay-Sachs births. American Jews were tested as to their carrier status and could make decisions about their reproductive needs. This was in line with what Dr. Harry Ostrer believed, that people had a right to their genetic information and could make their own decisions.

Alternatively, in the Orthodox community, Rabbi Josef Ekstein was testing people and not giving them their information, as he didn't want his community to be burdened with the (often false) stigmatization of carrier status. People in that community were tested anonymously and then would call to a center to determine if their choice of mate was compatible, never knowing who was a carrier of what disorder.

Debate the pros and cons of each method. Which method is "better" and why? Or are both appropriate for the populations served?

Ethical component: In your answer to the case study about Tay Sachs, which single ethical framework or combination did you favor? Now that you have read different ethical theories and what they mean, does this change your answer to the case studies? Why or why not?

Writing assignment

Design your own case study around an ethical issue in genetics. See Table 2 for ideas of topics.

CONCLUSION

Many instructors already use a case study approach. Adding an ethical dimension to these active learning modules is an easy and effective method to expose students to ethics in a nonthreatening way.

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REFERENCES

1. **Boston University Center for Excellence and Innovation in Teaching.** Using case studies to teach. [Online.] <http://www.bu.edu/ceit/teaching-resources/using-case-studies-to-teach/>. Accessed 11 April, 2014.

TABLE 2.
Topic ideas for writing assignment.

Animal and plant breeding	Environmental issues
Assisted reproduction	Forced DNA testing
CODIS and DNA typing of arrested not convicted	Gene therapy
Coverage and reimbursement of genetic tests	Genetically modified foods
Direct to consumer marketing of genetic tests	Genetic determinism
DNA testing followed by treatment, even before disease	Patenting genes, commercialization, and property rights
DNA testing of minor children	Privacy and discrimination

2. **Center for Case Study Teaching in Science.** Case collection. [Online.] <http://sciencecases.lib.buffalo.edu/cs/collection/>. Accessed April 11, 2014.
3. **Markkula Center for Applied Ethics at Santa Clara University.** A framework for thinking ethically. [Online.] <https://www.scu.edu/ethics/practicing/decision/framework.html>. Accessed April 11, 2014.
4. **Northwest Association for Biomedical Research.** Ethics primer. [Online.] <https://www.nwabr.org/teacher-center/ethics-primer#overview>. Accessed April 11, 2014.
5. **Popil, I.** 2011. Promotion of critical thinking by using case studies as teaching method. *Nurse Educ. Today* **31**:204–207.
6. **Wheelwright, J.** 2011. Cancer's wandering gene. *Discover* **32**:64–73.